

ANTIETAM: ASPECTS OF MEDICINE, NURSING AND THE CIVIL WAR

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ABSTRACT

Robert E. Lee's Army of Northern Virginia met the Army of the Potomac under George B. McClellan at Antietam Creek near Sharpsburg, Maryland on September 17, 1862. Before the day was done, nearly 23,000 men were killed, wounded, or missing, memorializing Antietam as the bloodiest single day in American military history. Dr. Jonathan Letterman, the Medical Director of the Army of the Potomac, Clara Barton, the "Angel of the Battlefield," and Dr. Hunter McGuire, Chief Surgeon to and Medical Director of General Stonewall Jackson's Corps, were among the nursing and medical personnel engaged on that historic day. These three individuals provided medical and nursing care to the casualties at Antietam (and other Civil War battles), but perhaps more importantly, developed systems of casualty management that brought order and humanity to the battlefield. These models of care continue today in modern military medicine.

Introduction

The War Between the States provides an unfortunate but ideal opportunity to explore the evolution of battlefield medicine through the contributions of several individuals—Dr. Joshua B. Letterman, Clara Barton, and Dr. Hunter Holmes McGuire—to improving the medical care of soldiers on both sides of the conflict. Civil War casualties surpassed all other American wars in percentage of combatants killed in action, wounded and dead from all causes (particularly disease). The absolute total killed in action, wounded and dead from other causes in the war was also very high, about equivalent to World War II (1). Several factors accounted for the increased casualties: improved accuracy, range and power of the armaments employed, battlefield tactics of the day and poor public health conditions.

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Tactics and Weapons

Many of the formally trained General officers of both armies received military education and training at the U.S. Military Academy, where they were instructed in battle tactics by Dennis Hart Mahan, the West Point professor of military science from 1830–1871 (2). Concentration of forces, rank and file battle formation, close quarters combat and an emphasis on flanking were military doctrine of the time, borrowed in large part from the Napoleonic experience. These battle tactics and the devastating power of the rifles and artillery used during the war resulted in very high numbers of killed and wounded in action. The basic infantry weapon was the Springfield rifled musket, accurate at 500 yards, firing a .58 caliber minie ball, which was actually a rifled bullet, not a smooth bore ball (3). Cannon were both smooth bore and rifled, improving in range, power and accuracy throughout the war. These cannon fired a variety of projectiles from solid shot to exploding shells, canister and chain, fired at close range with devastating effect (4). Enfilade fire, directed along the length rather than the breadth of a formation during a flanking maneuver, was particularly effective and lethal at Antietam.

Battlefield Medicine and Surgery at the Beginning of the Civil War

To put the Civil War in perspective, the U.S. population at the war's beginning was about 34 million. Nearly 4 million men, more than 11 percent of the entire American population, were engaged in the war (1). Most came from rural backgrounds, lacked immunity to communicable disease and were unprepared to be concentrated in close, unsanitary quarters, making them susceptible to illnesses such as dysentery, measles, smallpox and malaria. Military surgeons had little understanding of the causes of communicable disease and most treatments were ineffective. Basic necessities, particularly in the Confederacy later in the war, such as shoes, clothing, food and clean water, were in short supply. On average, the Confederate soldier was estimated to be ill or injured about 6 times over the course of the war (5,6). The viewpoint of the average soldier is more telling than statistics. From Pvt. Alexander Hunter, Company A, 17th Virginia Infantry on arrival at Hagerstown near Sharpsburg, Maryland before the Battle of Antietam: "Another day's march brought us to Hagerstown where the cornfields and orchards furnished our meals. The situation, in a sanitary point, was deplorable. Hardly a soldier had a whole pair of shoes.

Many were absolutely bare-footed, and refused to go to the rear. The ambulances were filled with the foot-sore and sick" (7).

Most Civil War military surgeons were graduates of unregulated two-year medical schools. At the beginning of the conflict, most had never treated a gunshot wound, and very few were experienced in evaluating and treating the injuries of war. Although general anesthesia became available in 1846, most surgeons were untrained in surgical techniques and had not performed surgery. Lister's theory of sepsis and subsequent antiseptic techniques were not applied to surgical and post-operative care until after the war. While chest, abdominal and neurological surgery were rarely possible, treatment of extremity injuries was possible and necessary. Amputation was commonly practiced and became the primary surgical skill of the Civil War battlefield surgeon (5,6). The organization of medical care in 1861 when the war began was centered on the role of individual physicians rather than systems of care designed to handle mass casualties. Both armies were shocked at the high casualty rates and unprepared for the management of these casualties.

Prior to the onset of hostilities in 1861, the Medical Department of the Union army was small, numbering only one Surgeon General, thirty Surgeons, and eighty-four Assistant Surgeons. Some of these surgeons resigned their Union commissions to join the Confederate Medical Department. By the end of the war four years later, the Union Medical Department expanded to more than 10,000 surgeons (6).

The Medical Department of the Confederate States of America was established in February, 1861 by the "Act for the Establishment and Organization of a General Staff for the Army of the Confederate States of America" of the Provisional Congress. The act provided for a medical department of one Surgeon General, four surgeons, and six assistant surgeons. By the end of the war, the South had about 4,000 military surgeons (8).

Antietam

With the Peninsula campaign over and Richmond no longer threatened, Lee was in command of the Army of Northern Virginia. He turned his attention to northern Virginia, defeating the Army of the Potomac under Pope in July, 1862 at Second Manassas. As Pope retreated to Washington, Lee seized the initiative, crossing the Potomac into Maryland, just south of Frederick, with 55,000 men (9,10). Lee's grand strategy was to liberate Maryland, gather recruits sympathetic to the Confederate cause and, obtain much needed supplies.

Jefferson Davis entertained the possibility that if Lee could defeat the Union on northern soil, the Confederacy might gain European recognition, perhaps providing much needed supplies and assistance in lifting the Union blockade of southern ports.

Lee drafted his plan of battle, Special Order 191, for his commanding generals on September 9, 1862. After Lee vacated Frederick, advancing toward Hagerstown, Maryland, a copy of S.O. 191 was found in a field by a corporal of the 27th Indiana, wrapped around three cigars (10). General George B. McClellan, now in command of the Army of the Potomac, had Lee's battle plan. He pursued Lee with 77,000 men, closing the gap between the armies near Sharpsburg, Maryland, where Lee chose to turn and face McClellan across Antietam creek (9,10).

On the morning of September 17, 1862, 130,000 soldiers were ready for battle. The day dawned gray and misty, but soon cleared. McClellan's battle plan was to turn both flanks and roll up Lee's army. Beginning at 6:00 AM with a Union assault through Miller's Cornfield, the battle proceeded roughly north to south along a three-mile long and half-mile wide front. The 30 acres of the Cornfield would change hands 6 times in three hours with 10,000 casualties. Union General Joseph Hooker reacted to the slaughter: "... the slain lay in rows precisely as they had stood in their ranks only a few minutes before" (9). The ferocious assaults and counter assaults at close quarters with musket and cannon, from the Cornfield to the north through the Sunken Road (also known as Bloody Lane) to the southern salient of Burnside's Bridge, lasted about twelve hours. The dramatic arrival of A. P. Hill's division from Harper's Ferry, just in time to attack the left flank of Union General Ambrose Burnside's forces, saved Lee's army from annihilation (9,10).

The battle ended as abruptly as it had begun. Total casualties on both sides, killed, missing and wounded, were about 23,000—more Americans died on September 17, 1862, than on any other day in the nation's military history (1,11), including World War II's D-Day. Lee expected McClellan to attack with much superior numbers on the following day, September 18th, but the attack did not come and there were no hostilities that day. The ambulance corps of both armies worked to clear the field of the injured and dead. The night of the 18th, Lee withdrew the Confederate forces west across the Potomac at Shepherdstown, Virginia (now West Virginia), ending the immediate hope that the Confederates could win on northern soil. The South also lost any possibility that any European countries would support their cause. Shortly thereafter, Lincoln issued the Emancipation Proclamation, changing the strategic focus of the war from preserving the union to abolishing slavery.

Dr. Jonathan Letterman

Jonathan Letterman was a native Pennsylvanian, graduating from Jefferson Medical College in Philadelphia in 1849, soon followed by military service as a U.S. Army Medical Department Assistant Surgeon in the Seminole Indian Wars with Stonewall Jackson. Assigned to the Army of the Potomac in June 1862, Major General McClellan promoted Letterman to the post of Medical Director of the Army of the Potomac. By September, Letterman had devised an efficient and, for the times, modern system of mass casualty management, beginning with first aid adjacent to the battlefield, removal of the wounded by an organized ambulance system to field hospitals for urgent and stabilizing treatment, such as wound closure and amputation, and then referral to general hospitals for longer term definitive management. This three-stage approach to casualty management, strengthened by effective and efficient transport, earned Letterman the title of "The Father of Battlefield Medicine" (12). While simple in design, the orderly and organized execution of a casualty management plan in the confusion of war, with very large numbers of casualties, was a massive undertaking. Each battle required advance planning and marshalling of vital resources, such as skilled and trained first aid attendants near the battlefield, ambulance attendants and drivers, wagons, mules, nurses, surgeons, medical supplies, clean water, food and firewood. Communications among the cooperating parties were difficult, and, of course, the rate at which casualties were received could not be controlled. Letterman's official battle report outlines in detail the logistical challenges of providing medical support to the army (12).

The management of casualties was organized at the unit level—first aid at the regimental level with triage to the mobile field hospitals at the division and corps level. The ambulance corps was established by U.S. Army Special Order 147 in August of 1862, following the Seven Days Battle that ended the Peninsular Campaign in July of 1862. Letterman's model of casualty management became the standard for the Union Army by an act of Congress in March 1864. At First Manassas in 1861, with about 5,000 combined dead and injured soldiers, it took a week to get the casualties off the field. At Antietam, with about 23,000 dead and wounded, all the casualties were removed from the battlefield in 24 hours (13,14).

The mass casualty management system that Letterman devised was extensively utilized after Antietam, perhaps no better than at Gettysburg. There were more than 50,000 casualties, dead and wounded during the three day battle in early July, 1863. At the close of the battle, 22,000 wounded Union and Confederate soldiers were treated

according to the Letterman model. A large general hospital, Camp Letterman General Hospital, was constructed at Gettysburg to provide care to the wounded long after the armies had moved on. Once the general hospital closed, those needing continuing hospitalization were shipped to larger hospitals in Philadelphia, Baltimore, Washington and Richmond (15).

Clara H. Barton

Clara Barton was born in Massachusetts in 1821 and raised in a socially conscious family, influenced by her parents who favored abolition and championed women's rights. An avid learner, Barton received both home and formal education, becoming a teacher in Massachusetts. She returned to formal education at the Clinton Liberal Institute in New York State, a respected school overseen by the Unitarian Universalist Church. She then moved to Bordentown, New Jersey and, pursuing public service, established the first free public school in New Jersey. Barton left teaching in 1854, moved to Washington, D.C. and was working in the U.S. Patent Office there at the beginning of the war.

In response to the declaration of war at Fort Sumter in early April, 1862, the Union mobilized to defend Washington, D.C. The 6th Massachusetts Infantry, passing through Baltimore on April 19th, 1862, was attacked by southern sympathizers. Several soldiers were killed and others injured. The wounded were taken to the Senate Chamber of the U.S. Capital where they were personally cared for by Barton, beginning her involvement in the Civil War.

Partly because of her experience with the 6th Massachusetts Infantry, Barton was keenly aware that the U.S. Army Medical Department was unprepared for the treatment of casualties. She successfully petitioned the military, with the help of U.S. Senator Henry Wilson of Massachusetts, to assist in bringing supplies and personal aid to battlefields in 1862, a substantial logistical problem. Volunteers, such as Barton, provided an invaluable service early in the war until larger charitable organizations, such as the U.S. Sanitary Commission, were able to assist the Union Army on providing basic necessities, sanitation and medical support for the troops (16).

Among the battles that Barton attended were Cedar Mountain, Second Manassas, Antietam, and Fredericksburg. At Antietam, Barton waited with Burnside's Ninth Corps as the only woman. She arrived on the northern edge of Miller's Cornfield around noon on September 17th with wagons of supplies while the battle was still being fought. The surgeons she personally assisted were astonished to see

her but gratified. It was there that she earned the title of "The Angel of the Battlefield" from a Union surgeon, Dr. James Dunn (17).

Dr. Hunter Holmes McGuire

Hunter Holmes McGuire was born in Winchester, Virginia, in 1835, the son of a respected physician and surgeon, Dr. Hugh Holmes McGuire. Hunter received his initial medical degree from Winchester Medical College (Virginia) in 1855 and, three years later, entered Jefferson Medical College in Philadelphia. McGuire showed signs of leadership at an early age. In 1859, following John Brown's execution in the aftermath of the ill-fated raid on the arsenal at Harper's Ferry, Brown's body was brought to Philadelphia and became a source of friction between the northern and southern medical students. McGuire organized the withdrawal of several hundred southern medical students from Jefferson, many of whom enrolled in the Medical College of Virginia in Richmond as did McGuire. Following graduation, McGuire returned to Winchester and in 1861 enlisted in the Confederate Army as a private. The Confederate Surgeon General soon reassigned McGuire as the medical director of the Army of the Shenandoah under Thomas J. (Stonewall) Jackson. McGuire served continuously with Jackson as his medical director and as a trusted confidant and surgeon. Jackson was shot through the left arm and right palm at Chancellorsville by friendly fire in May of 1863. McGuire skillfully amputated Jackson's arm and personally cared for him until Jackson's death eight days later.

As the medical director, McGuire organized the medical service of the Army of the Shenandoah in 1861, beginning with hospital administration, operating procedures and transport. His "genius for efficient organization" (18,19) soon extended to the battlefield where he organized the treatment of casualties much as Letterman had done. After initial treatment, adjacent to the battlefield by the Regimental Infirmary Corps, the Ambulance Corps transported the wounded to Reserve Corps or mobile field hospitals for urgent treatment, and then to general hospitals in the rear and finally, for those needing extended care, to hospitals in Richmond and other major cities. As in the case of the Army of the Potomac and Letterman, McGuire was also responsible for the challenging logistics of supply and transport.

Legacies

Dr. Jonathan B. Letterman resigned his commission in December, 1864, completing his service to the Union Army and moved to San Francisco where he practiced medicine and served as a coroner. His memoir,

Medical Recollections of the Army of the Potomac, was published in 1866. Letterman died at the young age of 48 on March 15, 1872 and was later interred in Arlington National Cemetery. The Army Hospital at the Presidio was named Letterman General Hospital in 1911, honoring the military physician who pioneered the care of battle casualties.

Clara H. Barton was asked by President Lincoln as the war ended to assist in locating and identifying the missing in action, including the thousands of unknown who died in military prisons. Before her work was finished, more than 22,000 missing soldiers were identified (16). She is most known for her role in founding the American Red Cross, following a trip to Europe where she became familiar with the Geneva Convention and the International Red Cross. Because of concerns that any international intervention in U.S. Wars would be a violation of the Monroe Doctrine, the American branch of the International Red Cross was not authorized by Congress until 1882 (16,17,20).

Dr. Hunter Holmes McGuire was a prisoner of war at Waynesboro in March of 1865. Paroled by General Sheridan, McGuire continued service with Lee's army until the war ended at Appomattox in April, 1865. He returned to Richmond as a professor of surgery in July, 1862, leading to a distinguished academic surgical career. He was a founder of the University College of Medicine in Richmond in 1892, later merged with the Medical College of Virginia. Highly respected by his peers, McGuire was elected president of the Southern Surgical association and the American Medical Association (18). Today, The Hunter Holmes McGuire Veteran's Administration Medical Center, is named in his honor.

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DISCUSSION

Lindberg, Bethesda: I very much enjoyed your presentation. Just a minor footnote to the Baltimore incident. I think it said that the first six federal casualties of the war occurred in Baltimore, because of the local feelings you referred to. They had another peculiarity there at the time—namely, two railroad stations, more or less like Pennsylvania Station, Grand Central in New York, which wouldn't communicate with each other. So passengers had to get off one train and walk three or four blocks to the other station, and that's where the shooting occurred. That also made Lincoln, when he was on his way to inauguration, his staff refused to allow him to be exposed to exactly that circumstance, and he came in the darkness of night at 2 a.m.—a move he regretted for the rest of his life. He felt embarrassed about that. But in order to get federal troops to Washington they actually brought them by boat to Annapolis, because they didn't dare go through Baltimore. Still a tough place.

Tooker, Philadelphia: Thank you.